ArcticNet annual report 2019 / 2020

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Contents

+ COVER & THIS PAGE Martin Fortier / ArcticNet

INTRODUCTION

Note from Leadership

Since 2004, through a network of partnerships, ArcticNet has established the research, connections and experience to understand the challenges faced by the North.

In 2019, ArcticNet received funding to embark upon a new phase of the organization. With new leadership and a forward-looking mandate, ArcticNet 2.0 hit the ground running with future-focused programs that build on its long-established history of research excellence and relationship-building. ArcticNet now represents Canada's largest financial commitment to northern research to date.

To prepare for a sustainable and long-term future, ArcticNet has charted a course in response to feedback from Northerners and actions taken by Inuit, First Nations, and Métis on reconciliation. The new directorate and ArcticNet community have changed the way research is viewed, designed and accomplished. Using research, partnerships, training and knowledge exchange, ArcticNet projects are:

- fostering the health and biodiversity of northern ecosystems;
- supporting self-determination in research for northern people;
- ensuring the environmentally safe development of resources, shipping and tourism;
- developing housing projects which respond to Northerners' needs and aspirations and promote well-being;
- monitoring the contamination of country foods;
- understanding the impacts of changing climate on water quality and infrastructure durability; and
- monitoring wildlife population dynamics relative to industrial development.

This report covers the first year of our new phase, and lays the groundwork for our future. As we continue to develop, we also evaluate our past: we will keep building on our successes while examining our challenges to learn how to improve.

Please join us in supporting, creating and accomplishing Arctic research: we are excited for what we can accomplish together.

Sincerely,

Donna Kirkwood, CHAIR OF THE BOARD
Philippe Archambault, SCIENTIFIC DIRECTOR
Jackie Dawson, SCIENTIFIC DIRECTOR
Christine Barnard, EXECUTIVE DIRECTOR

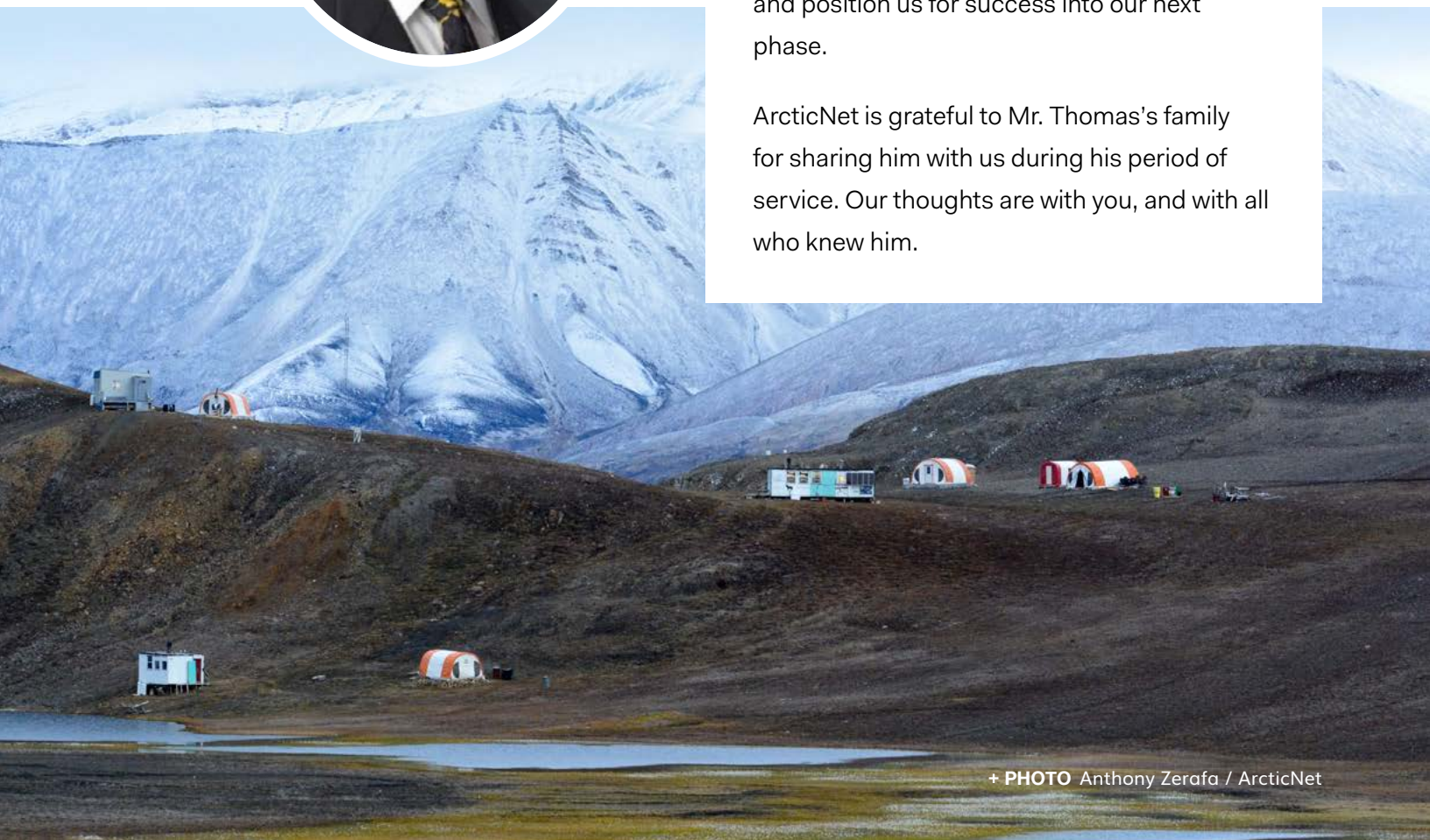
IN MEMORIAM

Mr. David Thomas, ArcticNet Board Chair

ArcticNet's Chair of the Board in 2019-2020 and Board member since 2005, Mr. David Thomas, passed away during the creation of this annual report.

We are thankful for Mr. Thomas's extensive contributions to ArcticNet over the last 15 years. His leadership, dedication and efforts have helped to establish the network as a leading voice in international Arctic research, and position us for success into our next phase.

ArcticNet is grateful to Mr. Thomas's family for sharing him with us during his period of service. Our thoughts are with you, and with all who knew him.



+ PHOTO Anthony Zerafa / ArcticNet

ABOUT ARCTICNET

By the numbers

168 researchers

45% female 55% male

43% new Network investigators

470 Publications

419 Refereed

34 projects

26 research chairs

34 universities

2600 HQP trained in total

430 HQP trained in 2019-2020

69 northern HPQ

$16,720,000

NCE Funding, 2019-2020

Partner Contributions $8,494,617 (cash)

$14,771,233 (in kind)

1086

Attendees at 2019 ASM

286 Northerners

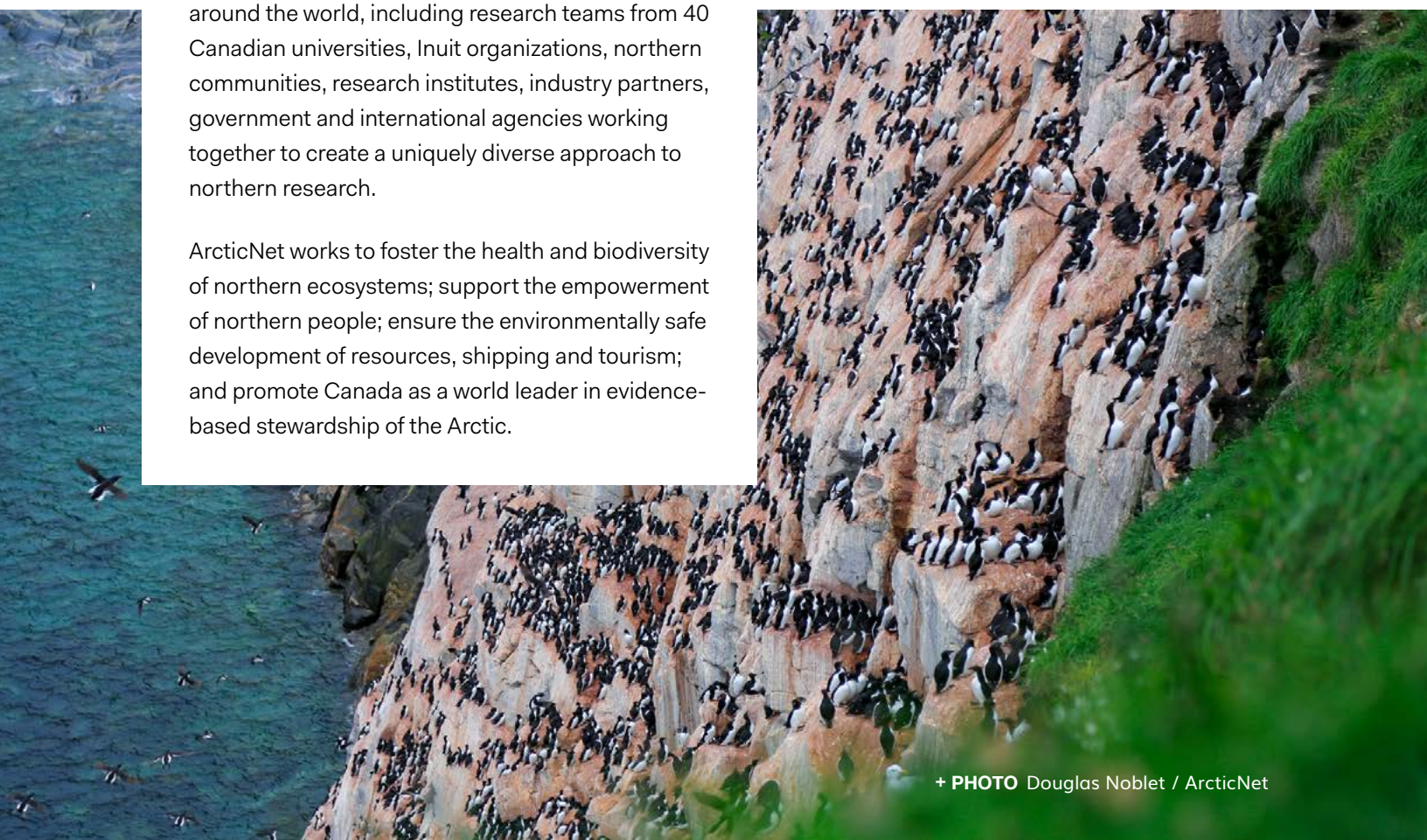
+ PHOTO Vidar Nordli Mathisen / Unsplash

ABOUT ARCTICNET

A world-leading research network studying the Canadian North

ArcticNet is a Network of Centres of Excellence created to explore the social, economic and environmental impacts of climate change and modernization on the Canadian North. The network encompasses academic, northern, industry and government leaders from across Canada and around the world, including research teams from 40 Canadian universities, Inuit organizations, northern communities, research institutes, industry partners, government and international agencies working together to create a uniquely diverse approach to northern research.

ArcticNet works to foster the health and biodiversity of northern ecosystems; support the empowerment of northern people; ensure the environmentally safe development of resources, shipping and tourism; and promote Canada as a world leader in evidence-based stewardship of the Arctic.



+ PHOTO Douglas Noblet / ArcticNet

VISION

A future where improved observations, modelling, capacity-building and knowledge exchange enable researchers, Inuit, Northerners and decision-makers to jointly develop adaptation strategies minimizing negative impacts and maximizing positive outcomes resulting from the transformation of the Canadian Arctic.

MISSION

- Build synergy among research Centres of Excellence in the natural, human health and social northern sciences, and engineering.
- Involve Inuit, Northerners, government and the private sector in the steering of the Network and scientific process through bilateral exchange of knowledge, training and technology.
- Increase and update the observational basis needed to address the ecosystem-level questions raised by climate change and modernization in the Arctic.
- Provide academic researchers and their national and international collaborators with stable access to the Arctic.
- Consolidate national and international collaborations in the study of the Canadian Arctic.
- Contribute to the training of the next generation of experts, from the North and South, needed to study, model and ensure the stewardship of the changing Canadian Arctic.
- Translate our growing understanding of the changing Arctic into regional impact assessments, national policies and adaptation strategies.

+ PHOTO Antonin Boulanger Cartier / ArcticNet

ACTIVITIES & PROGRAMMING

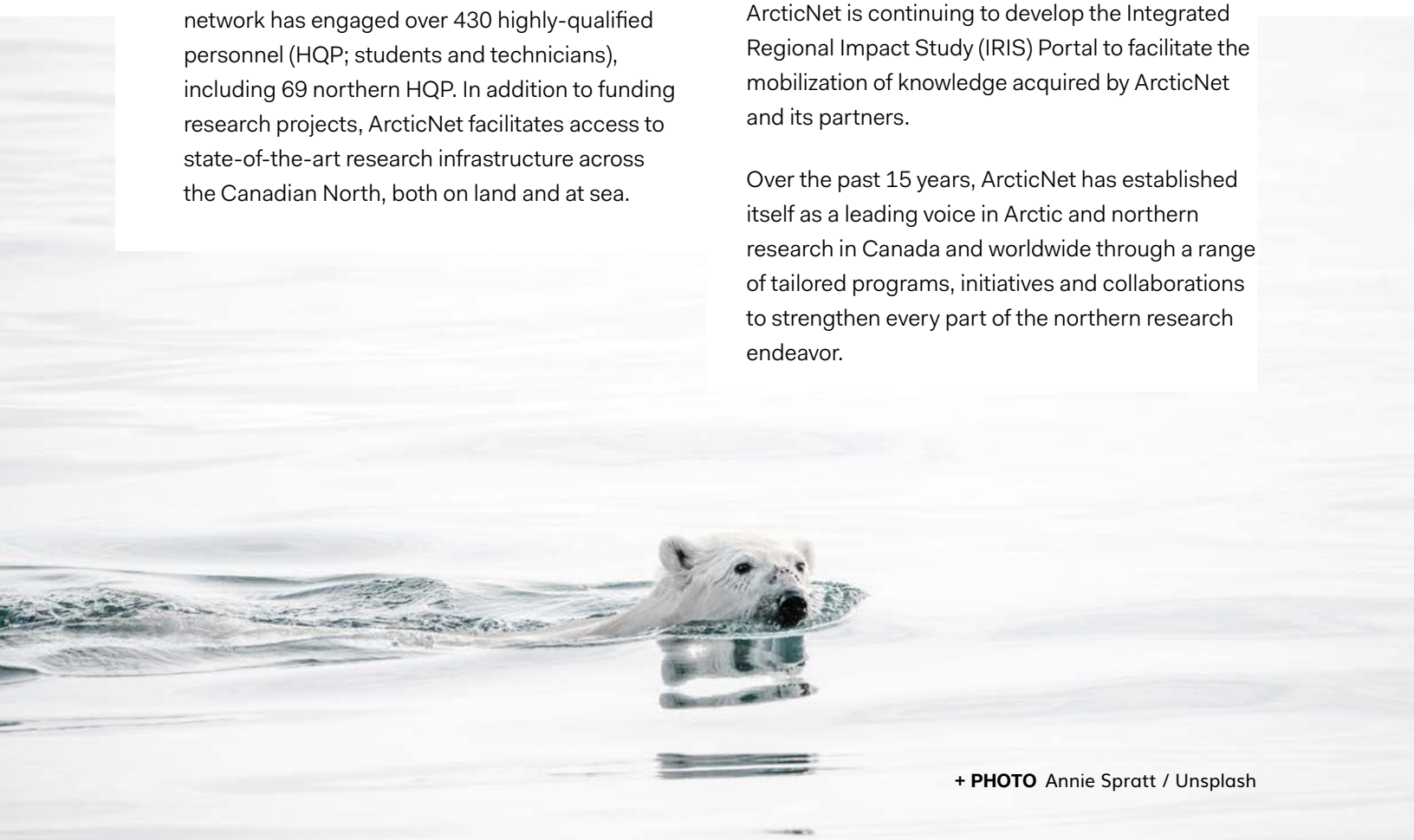
Strengthening Arctic research at all stages

Research is more than publishing scientific papers: to be successful, Arctic and northern research often involves logistically-challenging fieldwork, well-trained students and highly-qualified personnel, collaborations with partners and communities, knowledge mobilization and exchange, and opportunities to come together to meet researchers in other fields. In 2019-2020, ArcticNet funded 168 researchers, including 26 research chairs, working on 34 projects across 34 universities and colleges Canada-wide. The network has engaged over 430 highly-qualified personnel (HQP; students and technicians), including 69 northern HQP. In addition to funding research projects, ArcticNet facilitates access to state-of-the-art research infrastructure across the Canadian North, both on land and at sea.

The network embarked upon new partnerships nationally and internationally to further bolster the impact of our collective knowledge creation and training initiatives, including Arctic shipping companies, tourism, and relevant government and non-governmental organizations. The network hosts events throughout the year, culminating in one of the world's largest northern science meetings with the Annual Science Meeting held in December every year.

ArcticNet is continuing to develop the Integrated Regional Impact Study (IRIS) Portal to facilitate the mobilization of knowledge acquired by ArcticNet and its partners.

Over the past 15 years, ArcticNet has established itself as a leading voice in Arctic and northern research in Canada and worldwide through a range of tailored programs, initiatives and collaborations to strengthen every part of the northern research endeavor.



+ PHOTO Annie Spratt / Unsplash

FUNDING RESEARCH

2019-2020 marked the first year of ArcticNet 2.0, the launch of the newest funding phase of the institution, directed by new, diverse leadership bringing together the Canadian northern research community more cohesively than ever before.

As part of the new, forward-looking mandate, ArcticNet debuted 30 new projects constituting its Core Research Program. Launched in April 2019, the projects operate across the Canadian North with an impressive array of subjects and partnerships. The Core Research Program covers five themes supporting Arctic research priorities:

- Marine systems
- Terrestrial systems
- Inuit health, education and adaptation
- Northern policy and development
- Knowledge transfer.

ArcticNet holds research calls, and supports researchers through other initiatives such as the Logistical Support Program to facilitate researchers' access to the North.

READ MORE ABOUT OUR PROJECTS IN THE RESEARCH HIGHLIGHTS SECTION BEGINNING ON PAGE 14.

TRAINING HQP

Canada's capacity to act as a leader on Arctic issues depends on the next generation of Arctic leaders. ArcticNet's HQP and Northern HQP receive professional development and value-added training to prepare them for future careers in academia, government, non-governmental organizations and industry.

In 2019-2020, ArcticNet supported 430 HQP, including 69 Northern HQP, across 67 universities and government departments, including undergraduate and graduate students, postdoctoral fellows and research staff and technicians. HQP on ArcticNet-funded projects develop skillsets ranging from survival skills for work in remote areas, lab and field experience, ship-based and research station-based work, and best-practice methodologies. An integral part of every student's training is learning how ethically and respectfully to conduct workshops and consultations in the North with Inuit, First Nations and Métis. This collaborative work with Northerners enables better translation of science into meaningful knowledge for community members, as well as improving relationships and increasing two-way knowledge exchange.

+ PHOTO Jessica Lang / ArcticNet

The ArcticNet Student Association (ASA) works closely with the ArcticNet team to address gaps in value-added multidisciplinary training opportunities, and plans events including the well-subscribed Student Day at the Annual Scientific Meeting.

WORKING WITH PARTNERS

In 2019-2020, ArcticNet worked to develop strong partnerships both nationally and internationally to increase opportunities for the Canadian Arctic research community. MOUs, agreements to collaborate, joint initiatives and committee participation are part of ArcticNet's commitment to global collaboration and cooperation in northern research.

ArcticNet works closely with relevant federal, provincial and territorial departments and agencies, including Crown-Indigenous Relations and Northern Affairs Canada (CIRNAC) including the Northern Contaminants Program, Polar Knowledge Canada, Société du Plan Nord, Consortium Ouranos, and Environment and Climate Change Canada. Internationally, ArcticNet is a member of the European Integrated Arctic Observation System (INTAROS), participates in multiple Arctic Council initiatives, and has signed memoranda of understanding with international networks like INTERACT and T-Mosaic.

+ PHOTO David Gaspard / ArcticNet

MOBILIZING, TRANSFERRING AND EXCHANGING KNOWLEDGE

ArcticNet is committed to facilitating the exchange of knowledge between disciplines, regions, sectors and ways of knowing. Researchers and leadership work closely with community co-creators, industry members and government decision-makers to ensure knowledge generated by the academic research finds its way to those who can make use of it.

Part of ArcticNet's expanded mandate in the next phase of its operations includes extending its geographical focus beyond Inuit Nunangat to include Yukon Territory, mainland Northwest Territories, James Bay Region, and Nunavut. Working closely with the territorial and Inuit governments in each region is a vital element to ArcticNet's programming. The network's Integrated Regional Impact Study (IRIS) portal increases and accelerates knowledge mobilization through a web-based platform and interactive visualization models. Combined with workshops with end-users and knowledge contributors, the portal is updated and refined regularly.

ArcticNet researchers contribute policy briefs, opinion pieces and expert commentary, community workshops, websites, and science communication to further knowledge mobilization throughout the life cycles of their projects.

HOSTING EVENTS

Each year, ArcticNet hosts an Annual Scientific Meeting that brings together the network's project teams along with students, researchers, Northerners, industry members, not-for-profits and governments from across Canada and around the world to share knowledge and expertise on Arctic and northern issues. In 2019, the ASM took place in early December in Halifax, Nova Scotia, where nearly 1100 attendees joined 3500 online viewers to learn more from the 500 researchers in attendance.

26% of the in-person attendees were Northerners, making the 2019 ASM the most attended by Northerners in ArcticNet's history. Travel for Inuit participants was supported through the Inuit Travel Fund, a joint initiative made possible by CIRNAC, ITK, Sentinel North, Aurora Institute, Yukon University, the Mushkegowuk Council, and ArcticNet.

+ PHOTO Jean-Sébastien Moore / ArcticNet

RESEARCH HIGHLIGHTS

Pursuing research excellence about, by and for the North

A healthy Arctic is vital for the health of all of Canada's ecosystems and environments. Changes to the Arctic affect everyone, whether through climate change, security, natural resource development, or quality of life. ArcticNet supports research in a wide range of disciplines in the sciences and social sciences, along with community-led research and collaborations. The following are just a few of the many highlights from ArcticNet-funded research over the past year.

NORTH BY NORTH PROGRAM

This new program will support northern led science, self-determination in research, and build capacity for research and training activities that respond to northern and community needs. Launched in late 2019, the program is being developed by ArcticNet's Inuit Advisory Committee and Territorial Advisory Committee to build research capacity within Inuit communities and northern colleges and universities.

SATELLITE RESEARCH PROGRAM

ArcticNet's Satellite Research Program works to engage programs, the private sector and the international community in the study of the Canadian Arctic. In 2019-2020, the program collaborated with international initiatives such as T-MOSAiC, Nunataryuk, ArcticWeb, the Arctic Research Icebreaker Consortium of Europe (ARICE), INTAROS, and the US Study of Environmental Arctic Change (SEARCH).

+ PHOTO Andreanne Beardsell / ArcticNet

LOGISTICAL SUPPORT PROGRAM

Northern research requires navigating challenging logistics; ArcticNet's Logistical Support Program provides additional support for researchers to access northern research facilities and infrastructure such as the CCGS Amundsen, the CHARS Cambridge Bay Station, and the CEN Ward Hunt Island, the northernmost field station in the world. In 2019, ArcticNet researchers benefited from 1543 person-days at sea, with 58 participants onboard the CCGS Amundsen, and a total of 13 teams of 55 scientists received support through the Polar Continental Shelf Program and Centre d'études nordiques (CEN).

ARCTICKELP

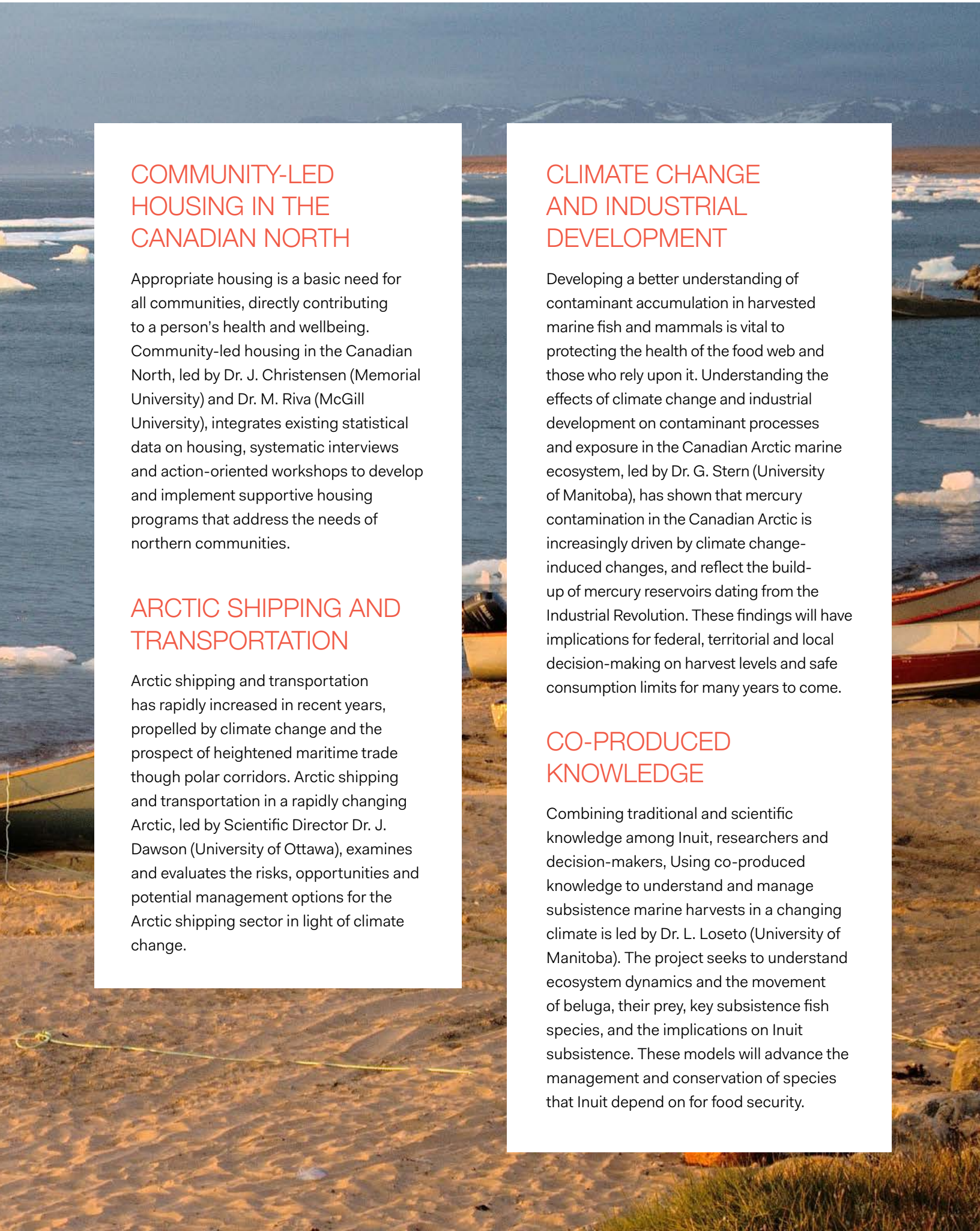
Underwater marine kelp forests form unique habitats along rocky Arctic coasts, providing shelter and food to a wide variety of species. The fate of kelp forests in a rapidly changing Arctic, led by ArcticNet's Scientific Director, Dr. P. Archambault (Université Laval), assesses the importance of these underwater forests for ecosystems and coastal communities. This knowledge will help northern communities anticipate and prepare for the effects of coastal changes.

DOWNSCALING OCEANOGRAPHY PROJECTS

After the 1971 Churchill Falls hydroelectric development in Labrador, local residents noted changes in sea ice conditions likely related to changes in seasonal timing of freshwater input to the ocean. Using the Aiviktuk ("place of the walrus") model, Downscaling future oceanography projects in the Canadian Arctic and Subarctic led by Dr. E. Oliver (Dalhousie University) assesses the impact of climate variability, river runoff change and climate change on sea ice in the region.

HYDROLOGICAL DYNAMICS OF WATERSHEDS

Canada's Mackenzie River Basin is one of the world's largest and most important freshwater ecosystems, and it is at risk due to climate change and resource development. The Hydrological dynamics of watershed—Mackenzie River Basin project led by Dr. J. Galloway (University of Calgary) has revealed data suggesting past episodes of climate warming increased biological productivity and organic matter in surface waters of sub-arctic lakes in the Northwest Territories. This research suggests a similar phenomenon may result from 21st-century warming.



COMMUNITY-LED HOUSING IN THE CANADIAN NORTH

Appropriate housing is a basic need for all communities, directly contributing to a person's health and wellbeing. Community-led housing in the Canadian North, led by Dr. J. Christensen (Memorial University) and Dr. M. Riva (McGill University), integrates existing statistical data on housing, systematic interviews and action-oriented workshops to develop and implement supportive housing programs that address the needs of northern communities.

ARCTIC SHIPPING AND TRANSPORTATION

Arctic shipping and transportation has rapidly increased in recent years, propelled by climate change and the prospect of heightened maritime trade though polar corridors. Arctic shipping and transportation in a rapidly changing Arctic, led by Scientific Director Dr. J. Dawson (University of Ottawa), examines and evaluates the risks, opportunities and potential management options for the Arctic shipping sector in light of climate change.

CLIMATE CHANGE AND INDUSTRIAL DEVELOPMENT

Developing a better understanding of contaminant accumulation in harvested marine fish and mammals is vital to protecting the health of the food web and those who rely upon it. Understanding the effects of climate change and industrial development on contaminant processes and exposure in the Canadian Arctic marine ecosystem, led by Dr. G. Stern (University of Manitoba), has shown that mercury contamination in the Canadian Arctic is increasingly driven by climate change-induced changes, and reflect the build-up of mercury reservoirs dating from the Industrial Revolution. These findings will have implications for federal, territorial and local decision-making on harvest levels and safe consumption limits for many years to come.

CO-PRODUCED KNOWLEDGE

Combining traditional and scientific knowledge among Inuit, researchers and decision-makers, Using co-produced knowledge to understand and manage subsistence marine harvests in a changing climate is led by Dr. L. Loseto (University of Manitoba). The project seeks to understand ecosystem dynamics and the movement of beluga, their prey, key subsistence fish species, and the implications on Inuit subsistence. These models will advance the management and conservation of species that Inuit depend on for food security.

PARTNERING WITH ARCTICNET

Connecting to a network of trailblazers

Through our network of partnerships, we are trailblazers in collaborative Arctic research. ArcticNet is the leading voice in Canadian northern research, with an established track record of research, programs, connections and experience. As Arctic issues move to the forefront of public policy and industry regulations, ArcticNet is looking to the future, supporting research that addresses the challenges and opportunities that matter.

To make evidence-based decisions, Canada needs robust research, strong connections with northern knowledge-holders, and effective collaboration between communities, researchers, governments and industry. ArcticNet works to mobilize research and facilitate knowledge exchange throughout the Network, across Canada and throughout the world.

Partnering with ArcticNet connects organizations to a wide network of partners, helps to support research collaborations and knowledge-sharing, improves alignment between sectors, and improves communication. Partnership may include funding, in-kind support, community participation, and more.

ArcticNet welcomes partnerships in the form of:

- Event sponsorship
- Co-creation and inclusive research projects
- Knowledge exchange and cooperation
- Acting as a broker for research dollars (from the project review process to funding allocation to reporting)

We are pleased to thank our numerous partners across the Canadian North including Inuit and Indigenous organizations, government agencies in the North and South, national and international organizations, private sector partners, and more.

+ PHOTO Danielle Nowosad / ArcticNet

ARCTICNET PEOPLE

Staff

Hosted at Université Laval and the University of Ottawa, the Network's administrative staff work from the main office or satellite and home offices across the country. Staff hail from a variety of backgrounds, all with a passion for and experience in Arctic research and research administration.

Christine Barnard
EXECUTIVE DIRECTOR

Natalie Desmarais
FINANCE AND ADMINISTRATION MANAGER

Claude Levesque
FINANCES AND RESEARCH MANAGEMENT ASSISTANT

Christine Demers
EXECUTIVE ASSISTANT

Marc-André Ducharme
SCIENTIFIC COORDINATOR

Alexa Reedman
NORTH BY NORTH RESEARCH MANAGER

Pascale Ropars
SCIENCE MANAGER

Philippe Archambault
SCIENTIFIC DIRECTOR

Dr. Philippe Archambault (PhD) is a Professor in the Department of Biology at Université Laval, in Québec City. He is also a Scientific Director of the Canadian Network of Centers of Excellence, ArcticNet. He is a researcher who strives to link fundamental biodiversity questions and theoretical research on global change and its effects on ecosystems functioning to applied science and policy-making. His work has been used to develop Marine Protected Areas in Canada and has been incorporated into United Nations high-level environmental management decision-making. His well-known reputation in Research Network leadership is based on his headship of different national and international initiatives such as the multisectoral Network of Innovation called 'Notre Golfe', winner of the 'Prix Étoile' from Quebec Oceans, or as chairman of the 4th World Conference of Marine Biodiversity, winner of the Prix du Club des Ambassadeurs du Palais des congrès de

Montréal et des Fonds de recherche du Québec. He is on the International Science Advisory Board of Ocean Networks Canada and a benthic expert on Circumpolar Marine Biodiversity program which is a cornerstone program of the Arctic Council's Conservation of Arctic Flora and Fauna Working Group. Additionally, he co-leads a Theme section on the effect of multistressor on marine biodiversity in the NSERC Canadian Healthy Oceans Network. The result of his research on connectivity of marine biodiversity at the planetary level was selected as one of the 10 discovery of 2019 by the Quebec Science magazine. He is strongly engaged in training the next generation of marine scientists.

Jackie Dawson
SCIENTIFIC DIRECTOR

Dr. Jackie Dawson (PhD) is an Associate Professor at the University of Ottawa in the Department of Geography, Environment, and Geomatics and holds the Canada Research Chair in Environment, Society, and Policy. She is also a Scientific Director of the Network of Centres of Excellence, ArcticNet. Dr. Dawson is an Applied Scientist working on the human and policy dimensions of environmental change in ocean and coastal regions and is considered an expert in Arctic shipping, Arctic tourism, and Arctic oceans governance. She is an elected fellow of the prestigious College of the Royal Society of Canada, the Global Young Academy and the Royal Canadian Geographic Society. She has won several research awards including Ontario Early Career Researcher award, the Faculty of Arts Young Researcher of the Year award, and the University of Ottawa Young Research of the Year Award. She has served as an invited expert on two Canadian Council of Academies (CCA) Expert Panels and now serves on the CCA Scientific Advisory Committee. Dr. Dawson is also currently serving on the United Nations Decade of Oceans Science (2021-2030) Arctic Task Force. From 2015-18, she served as the co-chair of the World Meteorological Organization's Social and Economics Research Applications working group and continues to participate as a committee member. In 2018 she was selected by the Minister of Science and the Royal Society of Canada to lead the drafting of the G7 science statement on Arctic oceans and resilient communities, which was signed by the academic academies of all G7 nations. She served as an invited Contributing Author on the Intergovernmental Panel on Climate Change (IPCC) Special Report on Oceans and the Cryosphere and as an invited Lead Author on the IPCC 6th Assessment report. She also acted as an invited lead author on Arctic Council's report 'Adaptation Actions for a Changing Arctic', and continues to contribute to several Arctic Council working groups.

ARCTICNET PEOPLE

Board

As a registered not-for-profit, ArcticNet is governed by a Board of Directors. The Board guides the organization's strategic direction and provides oversight to the Network's leadership team.

Archambault, Philippe
SCIENTIFIC DIRECTOR, Université Laval, Biology Department, co-Scientific Director, ArcticNet (ex officio)

Barnard, Christine
EXECUTIVE DIRECTOR, ArcticNet (ex officio) (non-voting)

Dawson, Jackie
SCIENTIFIC DIRECTOR, University of Ottawa, Department of Geography, co-Scientific Director, ArcticNet (ex officio), Manager, North by North

Fortier, Martin
EXECUTIVE DIRECTOR,
Sentinel North, Assistant to the Vice-president, Research and Innovation, Université Laval

Jayas, Digvir
VICE-PRESIDENT (Research and International), University of Manitoba

Kelly, Brendan
DIRECTOR, SEARCH, United States

Kirkwood, Donna
CHAIR OF THE BOARD, ArcticNet

Koperqualuk, Lisa
VICE-PRESIDENT - Intl. Affairs, Inuit Circumpolar Council

Lafreniere, Melissa
PROFESSOR, Queen's University

Levesque, Guy
ASSOCIATE VICE-PRESIDENT, Research, Support and Infrastructure, University of Ottawa

Obed, Natan
PRESIDENT, Inuit Tapiriit Kanatami

OBSERVERS

Viens, Brigit
DEPUTY DIRECTOR, Networks of Centres of Excellence

ARCTICNET

Financial Report

ArcticNet was audited in June 2020 in accordance with generally accepted Canadian auditing standards. The following figures and financial summary are prepared from the unqualified financial statements for fiscal year ending **31 March 2020**

Statement of operations

REVENUES	
Networks of Centres of Excellence Grant (NCE)	16,720,000
Network partner contributions (Non-NCE)	308,460
Others	720,120
Total revenues	**17,748,580**
EXPENSES	
Research projects	3,092,934
Research and logistics support	584,096
Knowledge mobilization	53,316
Networking and Training	698,925
Administrative Centre	1,417,071
Total expenses	**5,846,342**
Excess of revenues over expenses	**11,902,238**

Balance Sheet

ASSETS	
Cash	12,706,002
Accounts receivable	769,998
Prepaid expenses	74,373
	13,550,373
Capital assets	28,876
	13,579,249
LIABILITIES	
Accounts payable and accrued liabilities	300,476
Deferred grant	0
	300,476

NET ASSETS	
Invested in capital assets	28,876
Unrestricted Assets	13,249,897
	13,579,249

Statement of cash and in-kind contributions

	Cash	In-kind
NCE contributions	**16,720,000**	**0**
Non-NCE contributions[1]		
Provincial	1,159,249	124,000
Federal[2]	4,371,229	4,107,237
University	1,791,789	7,751,029
Industry	47,000	42,000
Other	1,125,350	2,746,967
	8,494,617	**14,771,233**
Total NCE and non-NCE	**25,214,617**	**14,771,233**

[1]Certain funds contributed by Network Partners to support research projects are forwarded directly to researchers and are not managed by the ArcticNet Administrative Centre.

[2]These federal contributions do not include contributions received from the Federal granting councils, the Canada Foundation for Innovation and Genome Canada.

ArcticNet
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Working together in a changing Canadian Arctic.